

CLAIMS

What is claimed is:

1. A process of producing coke, said method comprising the steps:
- (a) obtaining a coke precursor material derived from crude oil and having a volatile organic component; and
 - (b) subjecting said coke precursor material to a thermal cracking process, said thermal cracking process including adding to said coke precursor material at least one additive selected from the group consisting of carbonaceous material and chemical agents, said thermal cracking process performed for sufficient time and at sufficient temperature and under sufficient pressure so as to promote the production of sponge coke and to produce said coke having volatile combustible material (VCM) present in an amount in the range of from about 13% to about 50% by weight;
- wherein said coke is comprised of sponge coke in an amount in the range of from about 40 to 100% by weight.
2. A process according to claim 1 wherein said at least one additive is about 0.5 to about 20% by weight of said coke precursor material.
3. A process according to claim 2 wherein said at least one additive is about 0.5 to about 10% by weight of said coke precursor material.
4. A process according to claim 1 wherein said at least one additive has an oxygen content in the range of from about 5 to about 60 percent by weight.
5. A process according to claim 1 wherein said carbonaceous material is a cellulosic material.
6. A process according to claim 1 wherein said carbonaceous material is selected from the group consisting of sawdust, newspaper, alfalfa, wheat pulp, wood chips, wood fibers, wood particles, ground wood, wood flour, wood flakes, wood veneers, wood laminates, paper, cardboard, straw, cotton, rice hulls, coconut shells, peanut shells, plant fibers, bamboo fibers, palm fibers, kenaf, bagasse, sugar beet waste, coal, and lignite.
7. A process according to claim 1 wherein said chemical agents are selected from the group consisting of plastics, cardboard, and paper.

8. A process according to claim 7 wherein said plastics are selected from the group consisting of high density polyethylene, low density polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyvinyl acetate, polyacrylonitrile, polyurethane, acrylonitrile butadiene styrene, and other copolymers, plastics, and chemicals having suitable characteristics.

9. A process according to claim 1 wherein said coke precursor material is subjected to an efficient desalting process prior to step (b) and sodium levels are reduced to less than 15 ppm by weight.

10. A process according to claim 1 wherein said volatile combustible material in said coke is in the range of from about 15% to about 30% by weight.

11. A process according to claim 1 wherein said thermal cracking process further includes adding hydrocarbon compounds to promote an increase of the VCM content of said coke to within the range of from about 13% to about 50% by weight.

12. A process according to claim 1 wherein said thermal cracking process is selected from the group consisting of delayed coking, Fluid Coking®, and Flexicoking®.

13. A process according to claim 1 wherein said coke is comprised of sponge coke in an amount in the range of from about 60 to 100% by weight.

14. A process according to claim 1 further comprising adding hydrocarbon compounds to said coke precursor material to promote an increase of the VCM content of said coke to within the range of from about 13% to about 50% by weight.

15. A process according to claim 1 further comprising adding hydrocarbon compounds to said coke precursor material which are adapted to decompose at predetermined temperatures to promote the production of sponge coke during said thermal cracking process to within the range of about 40% to 100% by weight of said coke.

16. A coke made in accordance with a process according to claim 1.

17. A process of making coke, said process comprising:

- (a) providing a coke feed comprising a material derived from carbonaceous origin;
- (b) subjecting said coke feed to a thermal cracking process to promote the production of sponge coke and to produce said coke having volatile combustible material (VCM) present in an amount in the range of from about 13% to about 50% by weight;

wherein said coke is comprised of sponge coke in an amount in the range of from about

40 to 100% by weight.

18. A process according to claim 17 wherein said coke feed is subjected to an efficient desalting process prior to step (b) and sodium levels are reduced to less than 15 ppm by weight.

19. A process according to claim 17 wherein said volatile combustible material in said coke is in the range of from about 15% to about 30% by weight.

20. A process according to claim 17 wherein said thermal cracking process further includes adding hydrocarbon compounds to promote an increase of the VCM content of said coke to within the range of from about 13% to about 50% by weight.

21. A process according to claim 17 wherein said thermal cracking process is selected from the group consisting of delayed coking, Fluid Coking®, and Flexicoking®.

22. A process according to claim 17 wherein said coke is comprised of sponge coke in an amount in the range of from about 60 to 100% by weight.

23. A process according to claim 17 wherein said material derived from carbonaceous origin is derived from the group consisting of crude oil, coal, and tar sands.

24. A process according to claim 17 further comprising adding hydrocarbon compounds to said coke feed to promote an increase of the VCM content of said coke to within the range of from about 13% to about 50% by weight.

25. A process according to claim 17 further comprising adding predetermined chemical agents to said coke feed which are adapted to decompose at predetermined temperatures to promote the production of sponge coke during said thermal cracking process to within the range of about 40% to 100% by weight of said coke.

26. A process according to claim 17 wherein said coke feed further comprises at least one additive selected from the group consisting of carbonaceous material and chemical agents.

27. A process according to claim 26 wherein said at least one additive is added to said coke feed during said thermal cracking process.

28. A process according to claim 26 wherein said at least one additive is about 0.5 to about 20% by weight of said coke feed.

29. A process according to claim 28 wherein said at least one additive is about 0.5 to about 10% by weight of said coke feed.

30. A process according to claim 26 wherein said at least one additive has an oxygen content

in the range of from about 5 to about 60 percent by weight.

31. A process according to claim 26 wherein said carbonaceous material is a cellulosic material.

32. A process according to claim 26 wherein said carbonaceous material is selected from the group consisting of sawdust, newspaper, alfalfa, wheat pulp, wood chips, wood fibers, wood particles, ground wood, wood flour, wood flakes, wood veneers, wood laminates, paper, cardboard, straw, cotton, rice hulls, coconut shells, peanut shells, plant fibers, bamboo fibers, palm fibers, kenaf, bagasse, sugar beet waste, coal, and lignite.

33. A process according to claim 26 wherein said chemical agents are selected from the group consisting of plastics, cardboard, and paper.

34. A process according to claim 33 wherein said plastics are selected from the group consisting of high density polyethylene, low density polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyvinyl acetate, polyacrylonitrile, polyurethane, acrylonitrile butadiene styrene, and other copolymers, plastics, and chemicals having suitable characteristics.

35. A coke made in accordance with a process according to claim 17.

36. A coke made in accordance with a process according to claim 26.